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10/774,627	02/09/2004	Shigemichi Hamano	CANO:119	8789
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ROSSI, KIMMS & McDOWELL LLP. P.O. BOX 826 ASHBURN, VA 20146-0826			WRIGHT, KAINOA	
			ART UNIT	PAPER NUMBER
			2861	

DATE MAILED: 05/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/774,627

Applicant(s)

HAMANO ET AL.

Examiner

Kainoa BK Wright

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-8, 10-15, 17-18 and 20 is/are rejected.
- 7) ☒ Claim(s) 6,9,16 and 19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Specification/ Claim Objections

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter as claimed in claims 1. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

Terminology of claimed subject matter is inconsistent with terminology of subject matter as disclosed in the specification. Such inconsistencies make it difficult to find clear support of the claimed matter within the specification.

Furthermore, applicant is reminded that the disclosure must facilitate understanding of the invention as claimed. The references to the claimed matter, as disclosed in the specification, fail offer information that increases understanding of the claimed invention.

Offered as a non-limiting example of the inconsistencies between the specification and the claim terminology, is the situation where it is unclear whether the

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claimed image carrier is the disclosed intermediate transfer member or the photosensitive drum, both of which carry images in accordance with the specification.

Other examples include, both issuing devices and the selection device.

For the purposes of examination, the claimed image carrier shall be assumed to be referring to the intermediate transfer member (205) as disclosed in the specification. The primary transfer device shall be assumed to be the drum (202), and the secondary transfer device shall be assumed to be the secondary transfer roller (206).

Applicant is required to amend the specification and/or claims such that consistent terminology is used between the two and that it is used in such a way as to facilitate the understanding of the invention as claimed.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 7 discloses the first issuing device as causing the line counting device to count a number of lines stored in the storage device. Claim 7 is dependent on claim 3, wherein the first issuing device is operable with respect to the measured circumference of the image carrier and wherein the circumference value stored within the storage device is measured with respect to a reference clock period.

It is unclear from the claims, whether the applicant wishes an additional function for the first issuing device or whether the applicant meant for claim 7 to be dependent on claim 5. In light of the specification, the examiner believes that the applicant meant for claim 7 to be dependent on claim 5, and claim 7 has been examined on its merits as having such a dependency.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claim 1 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Fuchiwaki et al. (6263174).

Regarding claim 1, Fuchiwaki et al. teaches a “rotatively driven image carrier” in the form of an intermediate transfer belt 20; a “primary transfer device” in the form of a photosensitive drum 11; a “secondary transfer device” in the form of a general reference 40 to a group of apparatuses performing the function of transferring an image from the image carrier to a recording medium; and a “selection device” in the form of a reference signal change circuit 5 for changing between reference signals utilized for identifying writing positions on the intermediate transfer belt.

With regards to a "second issuing device" as disclosed in the claim, Fuchiwaki et al. provides for image writing processes to be based on the detection of reference signals, as is most readily illustrated in Figure 5.

With regards to a "first issuing device" as disclosed in the claim, Fuchiwaki et al. provides for image writing processes to be based on a length of the intermediate transfer belt by suggesting that an alternate reference signal be based on a timing whose duration extends from the detection of a mark on the transfer belt, and that this timing be counted by a counter (column 16, lines 25-40). The counting of time durations from a point on a rotating belt is in this case equivalent to the measurement of a length in a direction of rotation.

Regarding claim 11, the methods of claim 11 follow the functionality of the devices of claim 1 such that the operation of the devices of claim 1 produce the steps corresponding to claim 11, and as such the arguments presented against claim 1 are valid for claim 11.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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8. Claims 2, 10, 12 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fuchiwaki et al. (US 6263174 B1) in view of Yamada (2004/0184827 A1).

Regarding claim 2, Fuchiwaki et al. teaches the limitations of claim 1, including an image writing process being actuated by a reference signal deriving from a length measurement. Fuchiwaki et al. further teaches a "reference position detecting device" in the form of a mark sensor 92 and a "marking" in the form of a reference mark 911, as illustrated in Figure 5. Fuchiwaki et al. still further teaches the "second issuing device" operable to determine a first color reference positioning with respect to a reference position and then to determine a next color reference positioning with respect to the reference position redetected, as most readily illustrated in Figure 12.

Fuchiwaki et al. fails to teach the "first issuing device" operable to determine a first color reference positioning and then after a period of one rotation of the belt, to determine a next color reference positioning (with respect to the circumferential length measurement as disclosed in claim 1).

Yamada teaches the "first issuing device" discussed above, as an image formation start signal for a next color generated upon the lapse of a one-turn time period of rotation of the belt, as calculated by a circumference measuring device, following the generation of an image formation start signal for a first color (see paragraph [0013]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include within Fuchiwaki et al. an operation of the "first issuing device" as taught by Yamada in order to provide for the functional use of the suggested alternate

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reference signal whose timing is based on a measured length of the intermediate transfer belt, as suggested by Fuchiwaki et al.

Regarding claim 10, Fuchiwaki et al. teaches the limitations of claim 1, including an image forming device.

Fuchiwaki et al. fails to disclose that the image forming device be one of a printer, copier or a multipurpose machine.

Yamada claims an image forming device as one of a copier, printer, or multifunction apparatus (claim 10).

It would have been obvious to one of ordinary skill in the art to modify Fuchiwaki et al. to be useable in copiers, printers, and multifunction devices as disclosed by Yamada in order to provide the same functional advantages in similar machines.

Regarding claim 12, the methods of claim 12 follow the functionality of the devices of claim 2 such that the operation of the devices of claim 1 produce the steps corresponding to claim 12, and as such the arguments presented against claim 1 are valid for claim 12.

Regarding claim 20, the methods of claim 20 follow the functionality of the devices of claim 10 such that the operation of the devices of claim 10 produce the steps corresponding to claim 20, and as such the arguments presented against claim 10 are valid for claim 20.

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9. Claims 3-5, 7, 13-15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fuchiwaki et al. (US 6263174 B1) in view of Yamada (2004/0184827 A1) as applied to claim 2 above, and further in view of Nozaki (US 6275281).

Regarding claim 3, Fuchiwaki et al. in view of Yamada teaches the limitations of claim 2 as discussed above, and further teaches from Yamada, a "circumference measuring device" in the form of a circumferential length detecting counter 307, that measures a length along the transfer belt using a count from a "counting device" (counter section 303), wherein the count is of the signal of a "reference clock" (oscillator 301); and a "storage device" that stores the circumference count value as a circumferential length register 304, as illustrated by Figure 2.

Fuchiwaki et al. in view of Yamada fails to teach a "line number counting device" that counts a number of lines with reference to a beam detect signal period.

Nozaki teaches a "line number counting device" as a line number counter 502 that counts a number of lines with reference to a beam detect signal.

It would have been obvious to one of ordinary skill in the art at the time of the invention, to include within Fuchiwaki et al. in view of Yamada, a line number counter as taught by Nozaki, in order to have a line count value by which to synchronize beam write timing with a write position reference signal and thereby match the write positions of various colors, as is suggested by the abstract of Nozaki.

Regarding claim 4, Fuchiwaki et al. in view of Yamada and in further view of Nozaki teaches the limitations of claim 3 as discussed above, and further provides for a clock period being less than a line period as suggested by column 13, lines 50-55 of

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Nozaki. Nozaki specifically discloses a beam period defined by a count number of a free-run counter, a free-run counter by definition providing a clock pulse, the period of the counter being less than that of the beam period. It would have been obvious to one of ordinary skill in the art at the time of the invention, to incorporate within Fuchiwaki et al. in view of Yamada, a clock period less than a beam period in order to define a beam period by a count number as shown in Nozaki.

Regarding claim 5, Fuchiwaki et al. in view of Yamada and in further view of Nozaki teaches the limitations of claim 3 as discussed above, and further provides for the conversion of a length measurement in units of clock periods to one in units of number of lines. Yamada provides for measurement of a circumference in reference clock pulses as illustrated in Figure 3. Nozaki provides for a BD signal to be measured in terms of a reference clock (column 11, lines 20-30) which, although not specifically stated, implies a clock pulse rate at which BD signals are produced, and therefore a relationship between the two signals. Nozaki also provides for a distance along an image portion of the transfer belt, the image portion being composed of a delay portion n and a writing portion m, measured by a count of BD signals as illustrated in Figure 3. The fact that both Yamada and Nozaki can perform the function of metering out a length in their respective units of measurement, implies that the units of measurement are interchangeable, and that they constitute only a design choice where one would choose the larger or smaller of the periods when using the resulting measurement in cases where a lower or higher degree of accuracy in the calculation is needed. Therefore it would have been obvious to one of ordinary skill in the art to make a conversion

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between measuring units by utilizing their established relationship, in order to synchronize writing signals with position signals as is well known in the art and is suggested by Nozaki.

Regarding claim 7, Fuchiwaki et al. in view of Yamada and in further view of Nozaki teaches the limitations of claim 5 as discussed above, and further provides for the storage device to store a number of lines and for the first issuing device to determine the writing position from a count of the number of lines stored in the storage device, the line count being the converted circumferential length measurement.

Fuchiwaki et al. in view of Yamada teaches a circumferential length detector that measures the circumferential length of a transfer belt in the direction of rotation with respect to a reference clock (see Yamada, paragraphs [0078]-[0080]). Fuchiwaki et al. in view of Yamada also teaches storage of a count value corresponding to the measured circumferential length and a generation of an enable signal by reading the stored count value.

Nozaki provides for a BD signal to be measured in terms of a reference clock and by extension implies a conversion relationship between a line (BD) period and a clock period as discussed above in relation to claim 5. Nozaki also provides for a line number counter 502 that count a number of lines.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention, to use the conversion relationship of Nozaki to store the circumference measurement of Yamada in terms of a count of a number of lines and to issue a enable signal based on the count of number as counted by the line number counter (Nozaki

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502). This combination would have been motivated by the fact that the functionality of the enable signal generator to output an enable signal with respect to a stored count value, is unaffected by a change of units of the count value.

Regarding claim 13, the methods of claim 13 follow the functionality of the devices of claim 3 such that the operation of the devices of claim 3 produce the steps corresponding to claim 13, and as such the arguments presented against claim 3 are valid for claim 13.

Regarding claim 14, the methods of claim 14 follow the functionality of the devices of claim 4 such that the operation of the devices of claim 4 produce the steps corresponding to claim 14, and as such the arguments presented against claim 4 are valid for claim 14.

Regarding claim 15, the methods of claim 15 follow the functionality of the devices of claim 5 such that the operation of the devices of claim 5 produce the steps corresponding to claim 15, and as such the arguments presented against claim 5 are valid for claim 15.

Regarding claim 17, the methods of claim 17 follow the functionality of the devices of claim 7 such that the operation of the devices of claim 7 produce the steps corresponding to claim 17, and as such the arguments presented against claim 7 are valid for claim 17.

10. Claims 8 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fuchiwaki et al. (US 6263174 B1) in view of Yamada (2004/0184827 A1) and further in

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view of Nozaki (US 6275281) as applied to claim 3 above, and still further in view of Morita (US 6788322).

Fuchiwaki et al. (US 6263174 B1) in view of Yamada (2004/0184827 A1) and further in view of Nozaki (US 6275281) provides for the limitations of claim 3 as discussed above, including a line counting device that counts a number of lines with reference to a time period.

Fuchiwaki et al. (US 6263174 B1) in view of Yamada (2004/0184827 A1) and further in view of Nozaki (US 6275281) fails to provide for an elapsed time period whose duration extends from the issuing of an image writing signal for a final color to a restart of conveying of a recording medium that has been held in an upstream standby location.

Morita discloses a predetermined sheet feed timing for supplying a recording medium from an upstream standby position at a predetermined timing, the timing relating to the distance L1 of travel from a standby position to a contact image sensor 204 acting as a detector for the issuing of an image writing timing signal, as shown in Figure 3.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Fuchiwaki et al. (US 6263174 B1) in view of Yamada (2004/0184827 A1) and further in view of Nozaki (US 6275281) in order to provide for a sheet feeding timing as disclosed by Morita and as suggested by Fuchiwaki et al. (column 8, lines 20-35) as a paper feeding system wherein paper is "temporarily positioned and stopped". Further obvious is the duration of time extending from the issuance of the final color

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image writing signal until the re-conveyance of a recording medium from a standby position. It is examiners understanding that this functions as a countdown of time until a new page is to be started. Although not explicitly stated in the references, it is understood that a delay of a medium from a standby position has the inherent function of being able to wait until the previous page is complete before being fed into the image forming area.

Regarding claim 18, the methods of claim 18 follow the functionality of the devices of claim 8 such that the operation of the devices of claim 8 produce the steps corresponding to claim 18, and as such the arguments presented against claim 8 are valid for claim 18.

Allowable Subject Matter

11. Claim 6 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 6, the merits of claim 6 are considered to be allowable because the limitations of the claim as they apply to the art of image forming devices are such that examiner is unable to produce prior art that would preclude patentability.

Specifically, examiner believes that the adjustment of an integer portion of a conversion result with respect to a decimal portion of the conversion result; the conversion result depending from a unit conversion of a count value; the count value being of a length

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measurement of a transfer belt; is previously unknown in the art of image forming devices.

Regarding claim 16, the methods of claim 16 follow the functionality of the devices of claim 6 such that the operation of the devices of claim 6 produce the steps corresponding to claim 16, and as such the arguments presented for claim 6 are valid for claim 16.

12. Claims 9 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 9, the allowable features of this claim include the selection of an issue device (or mode of producing an issue signal) based on a change or lack of change in the processing speed at which the image formation takes place. Examiner has thoroughly searched the related art and has not found any prior art that could reasonably be applied toward this limitation. Therefore examiner believes this limitation to be sufficient for patentability.

Regarding claim 19, the methods of claim 19 follow the functionality of the devices of claim 9 such that the operation of the devices of claim 9 produce the steps corresponding to claim 19, and as such the arguments presented against claim 9 are valid for claim 19.

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Conclusion


13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sasaki (US 5499092).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kainoa BK Wright whose telephone number is (571) 272-5102. The examiner can normally be reached on M-F 8:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vip Patel can be reached on (571) 272-2458. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KAI
5/22/06


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